

NASA Langley Research Center is actively seeking partnerships and collaborations to commercialize its Low-Temperature Oxidation Catalysts technology. Several licensees are developing commercial applications.

## The Market Opportunities

Commercial devices that require regeneration of carbon dioxide or removal or conversion of toxic carbon monoxide and/or formaldehyde can make use of this advanced technology. Low-temperature oxidation catalysts can be used in:

- Sensors for carbon monoxide or volatile organic compounds
- Removal of carbon monoxide and formaldehyde from houses and other buildings
- Removal of carbon monoxide and formaldehyde from automobile, aircraft, and other vehicle interiors
- Face masks
- Automotive exhaust clean up
- Sensors for carbon monoxide or hydrocarbons

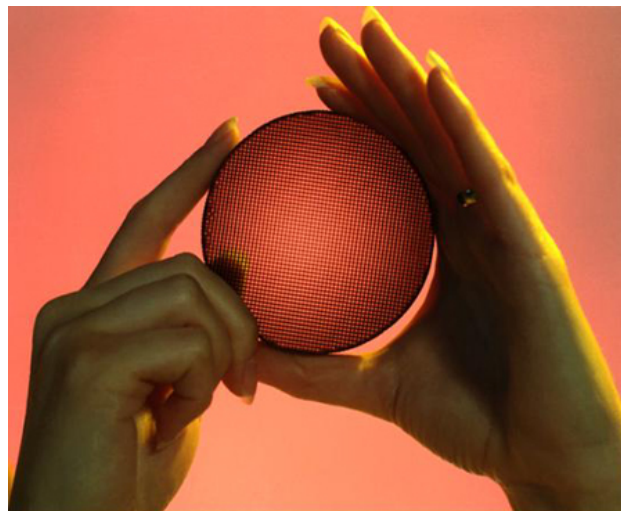
## The Benefits

NASA Langley Research Center has developed a family of catalysts for low-temperature oxidation of carbon monoxide and other gases. These oxidation catalysts have high activity at low temperatures. Both carbon monoxide and formaldehyde can be readily oxidized in air at typical room temperatures, without requiring any energy input, provided that a suitable gas flow through the catalyst is maintained.

The low-temperature oxidation catalysts can be fabricated in a number of ways and coated onto various catalyst supports, including porous ceramic monoliths and beads. This means the catalyst can be integrated into existing designs, made to fit in limited space, and fabricated into a variety of geometrically different products.

## Low-Temperature Oxidation Catalysts

Converting Toxic Gases at Ambient Temperature



## The Technology

This new class of low-temperature oxidation catalysts consists of combinations of a noble metal and one or more reducible oxides. These noble-metal/reducible-oxide (NMRO) catalysts have significantly higher catalytic activities than noble metal or reducible oxide catalysts alone.

The NMRO catalysts most extensively developed to date are based on platinum and tin oxide. Both carbon monoxide and formaldehyde can be removed from air at low temperatures by catalytic oxidation with a single catalyst. Research on other gases and applications continues at NASA Langley Research Center.

## Additional Information

*To discuss in detail how this technology can profit you and your business, please contact:*

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